

# JAPAN

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JIS B 6556 (1990) (English): Test methods for performance and accuracy of bandsaw sharpening machines

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*The citizens of a nation must  
honor the laws of the land.*

Fukuzawa Yukichi

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## **JAPANESE INDUSTRIAL STANDARD**

**Test methods for  
performance and accuracy of  
bandsaw sharpening machines**

**JIS B 6556—1990**

**Translated and Published**

**by**

**Japanese Standards Association**

In the event of any doubt arising,  
the original Standard in Japanese is to be final authority.

## JAPANESE INDUSTRIAL STANDARD

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Test methods for performance and accuracy  
of bandsaw sharpening machines

B 6556-1990

1. Scope

This Japanese Industrial Standard specifies the test methods related to the functions, running performances and rigidities and the inspection methods on the static accuracies and machining accuracies of the bandsaw sharpening machine of 305 mm or under in the effective opening of saw supports specified in JIS B 0114.

Remarks 1. The applicable Standards to this Standard are as given in the following:

JIS B 0114 Glossary of Terms for Wood Working Machinery

JIS B 6507 General Code of Safety for Wood Working Machinery

JIS B 6521 Methods of Measurement for Noise Emitted by Wood Working Machinery

2. The units and numerical values given in { } in this Standard are based on the traditional unit system and are appended for informative reference.

2. Methods for Functional Tests

The functional tests on the bandsaw sharpening machine shall be in accordance with Table 1.

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Reference Standards:

JIS B 6501-Test Code for Performance and Accuracy of Wood Working Machinery

JIS Z 8203-S1 Units and the Use of their Multiples and of Certain other Units

Table 1. Functional Test

No.	Test item	Test method
1	Electric equipment	Before and after the running test, examine the insulating condition once each.
2	Start, stop and running operation of grinding wheel spindle	At an appropriate speed of rotation of the grinding wheel spindle, carry out 10 times of start and stop repeatedly and examine the smoothness and reliability of actions.
3	Changing operation of speed of rotation of grinding wheel spindle	Change the speed of rotation of the grinding wheel spindle on overall marked speeds of rotation and examine the smoothness of actions and reliability of indications of the operating apparatus.
4	Lifting and lowering operations of grinding wheel spindle	Allow the grinding wheel spindle to lift and lower and examine the reliability and uniformity of actions throughout the overall length of motions. In addition, examine the smoothness and reliability of actions of the turning out device and grinding quantity regulating device of the grinding wheel spindle.
5	Operation of band saw feeding device	Allow the band saw feed claw to travel and examine the reliability and uniformity of actions throughout overall length of the motion. In addition, examine the smoothness and reliability of actions of the regulating device of feed positions of band saw.
6	Operations of band saw pressing device and band saw supporting device	Operate the band saw pressing device and the band saw supporting device to examine the smoothness and reliability of actions.
7	Mounting and dismounting of grinding wheel	Examine the smoothness and reliability of the mounting and dismounting of the grinding wheel and the clamping screws.
8	Safety device	Examine the reliability of the safety functions for the worker and protective function for the machine (see JIS B 6507).
9	Lubricating equipment	Examine the reliability of such functions as the oil tightness and proper distribution of oil quantity.
10	Oil hydraulic equipment	Examine the reliability of such functions as the oil tightness and pressure regulation.
11	Pneumatic equipment	Examine the reliability of such functions as the air tightness and pressure regulation.
12	Accessories	Examine the reliability of the functions.

Remarks: For a bandsaw sharpening machine which is not provided with the said function, the corresponding test item to this in Table 1 is omitted.

### 3. Methods for Running Tests

**3.1 No-load Running Test** Allow the grinding wheel spindle to rotate, continue running for 30 to 60 minutes, measure the required electric power and noise after the bearing temperatures have been stabilized, record on respective items specified in Record Form 1 of Table 2, and, at the same time, observe that no abnormal vibration takes place by the sense of touch.

Furthermore, the measurement of noise shall be in accordance with JIS B 6521.

Table 2. Record Form 1

No.	Time of measurement hour, minute	Speed of rotation of grinding wheel spindle min <sup>-1</sup> {rpm}		Temperatures °C			Required electric power			Noise dB (A)	Description
				Bearing of grinding wheel spindle		Room temperature	Voltage V	Current A	Input kW		
		Marked	Actually measured	Left	Right						

Remarks 1. For the sharpening machine which is provided with the speed change device of the speed of rotation of the grinding wheel spindle, record on the speeds of rotation of at least two levels including the maximum speed of rotation.

2. As regards the noise measurement conditions, record in the description column.

**3.2 Load Running Test** Carry out the grinding of the bandsaw teeth, measure the required electric power and noise, record on respective items specified in the Record Form 2 of Table 3, and, at the same time, observe that no considerable irregularity is presented in sparking conditions of respective teeth during grinding and condition of the grinding face by the sense of touch.

Furthermore, the measurement of the noise shall be in accordance with JIS B 6521.

In the measurement of the required electric power, carry out measurement by changing the cutting depth at a definite feed speed or by changing the feed speed at a definite cutting depth.



Table 3. Record Form 2

No.	Band saw			Grinding wheel							Cutting condition		Required electric power					Description		
	Dimensions			Division in use	Diameter  mm	Thickness  mm	Abrasive	Grain size	Grade	Bonding material  Speed of rotation of grinding wheel spindle $\text{min}^{-1}$ {rpm}	Feed speed  $\text{m}/\text{min}$	Cutting depth  $(^{\circ})$ (mm)	Voltage  V	Current  A	Input		Cutting power  $P_1 - P_0$ kW		Noise  dB (A)	
	Length  mm	Width  mm	Thickness  mm												Material	No-load  $P_0$ kW				Load  $P_1$ kW
				Rough grinding																
				Finish grinding																

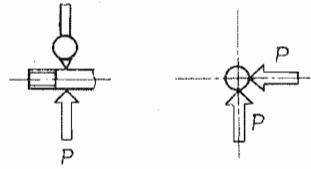
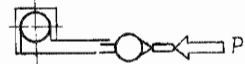
Note (<sup>1</sup>) For the cutting depth in this case, record the amount of feed of the grinding wheel.

- Remarks 1. As regards the conditions of the noise measurement, these shall be recorded in the description column.
2. The shapes of the band saw and grinding wheel shall be illustrated and the main dimensions of which shall be denoted.
3. As regards the finish grinding, the measurement of grinding power may be omitted.

#### 4. Methods for Rigidity Tests

The rigidity tests of the bandsaw sharpening machine shall be in accordance with Table 4.

Table 4. Rigidity Test

No.	Test item	Measuring method	Diagram for measuring method
1.	Bending rigidity of grinding wheel spindle	Apply a fixed test indicator to the tip end part (side face) of the grinding wheel spindle, apply the load ( $P$ ) to the spindle in rectangular direction <sup>(2)</sup> , and measure the deflection of the grinding wheel spindle. Carry out this measurement in two directions of the width direction and thickness direction of the band saw.	
2.	Rigidity of band saw feed-ing device	Apply a fixed test indicator to the feed claw of band saw, apply the load ( $P$ ) to the feed claw of the band saw in the opposite direction to the feed direction, and measure the deflection of the feed claw of band saw in load direction.	

Note <sup>(2)</sup> The position to be loaded is to be the nearer position to the grinding wheel spindle end as far as possible, and the distance from its grinding wheel spindle end is to be recorded.

- Remarks 1. The rigidity tests on the machine of the same design shall be represented by the test results carried out on a representative one, and on others may be omitted.
2. The load ( $P$ ) to be applied to the roll shall be as recommended magnitude by the manufacturer, and its value shall be recorded.
3. While rotating the grinding wheel spindle, this measurement shall be carried out after the bearing temperatures have been stabilized.

## 5. Static Accuracy Inspection

The inspecting methods on static accuracies of the bandsaw sharpening machine shall be in accordance with Table 5.

Table 5. Static Accuracy Inspection

Unit: mm

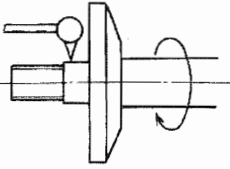
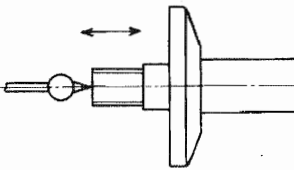
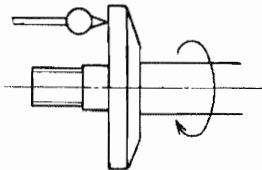
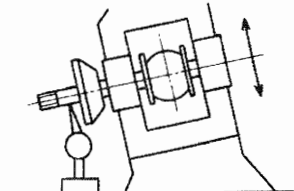
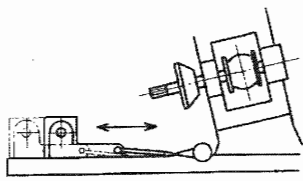
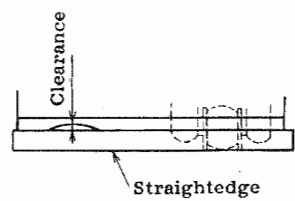
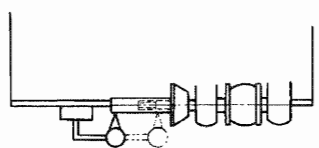
No.	Inspection item	Measuring method	Diagram for measuring method	Permissible value
1	Runout of grinding wheel spindle	Apply a test indicator to the outer peripheral face of the grinding wheel mounting part, rotate the grinding wheel spindle manually, and consider the maximum difference of readings of the test indicator during rotation.		0.01
2	Movement of grinding wheel spindle in axial direction	Apply a test indicator to the tip end of the grinding wheel spindle, shake the grinding wheel spindle in axial direction <sup>(3)</sup> , and consider the maximum difference of readings of the test indicator to be the measured value.		0.01
3	Runout of flange face of grinding wheel spindle	Apply a test indicator to the flange face, rotate the grinding wheel spindle manually, and consider the maximum difference of readings of the test indicator during rotation to be the measured value.		0.02 per 100 in diameter
4	Dispersion of lowered position of grinding wheel spindle	At the lowered position of the grinding wheel spindle, apply a test indicator to the outer peripheral face of mounting part of the grinding wheel, allow the grinding wheel spindle to move up and down by the maximum travel amount manually, and measure the maximum difference of readings of the test indicator before and after the travel. Carry out this measurement three times or more, and consider the maximum value among these to be the measured value <sup>(4)</sup> .		0.01

Table 5 (Continued)

Unit: mm

No.	Inspection item	Measuring method	Diagram for measuring method	Permissible value
5	Irregularity on feed of feed claw	Allow the feed claw to travel, apply a test indicator to the outer side face of the feed claw at the terminal point of the feeding direction, allow the feed claw to reciprocate several times manually, and consider the maximum difference of readings thereof to be the measured value.		0.01
6	Straightness of saw pressing face	Apply a straightedge on the saw pressing face in longitudinal direction, measure clearances with a feeler gauge, and consider the maximum value thereof to be the measured value.		0.04 per 200
7	Parallelism of saw pressing face to center line of grinding wheel spindle	Attach a test bar to the grinding wheel spindle, apply the test indicator fixed to the saw pressing face to this, measure the readings of the test indicator at the tip end and mouth of the test bar, and consider the difference thereof to be the measured value <sup>(5)</sup> .		0.10 per 100

Notes <sup>(3)</sup> The force to shake in axial direction is to be approximately 150 N {approximately 15 kgf}.

<sup>(4)</sup> In this measurement, it is carried by fixing the grinding wheel spindle.

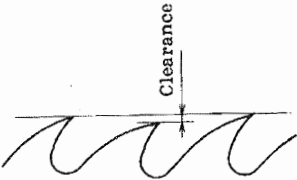
<sup>(5)</sup> In this measurement, it shall be carried out by attaching the test bar at a position where the influence of the runout of the grinding wheel spindle is the most insignificant.



## 6. Methods for Machining Accuracy Inspection

The machining accuracy inspection of the bandsaw sharpening machine shall be in accordance with Table 6.

Table 6. Machining Accuracy Inspection

Unit: mm			
No.	Inspection item	Measuring method	Diagram for measuring method
1	Accuracy of tip height	Apply a straightedge to neighbouring three teeth straddling these, and measure clearances with a feeler gauge. Carry out this measurement seven times or more by shifting one tooth each, and consider the largest value of all of them to be the measured value.	
			$\frac{1}{1000}$ <p>the pitch</p>

- Remarks 1. The band saw used shall be pre-processed with necessary treatments, and of which size shall be that corresponding to the functions.
2. The grinding wheel used shall be that recommended by the manufacturer.

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